Governor's Commission on Climate Change
Final Report Highlights
December 23, 2008

As called for by Executive Order 59 (2007), the Governor's Commission on Climate Change developed a Climate Change Action Plan to accomplish five tasks.

1. Inventory the amount of and contributors to Virginia's greenhouse gas emissions, and projections through 2025.

    - It is expected that under a business-as-usual scenario, Virginia's greenhouse gas (GHG) emissions would grow to 230 million metric tons in 2025. The goal of a 30% reduction by 2025 equates to an emission reduction target of 69 million metric tons, bringing GHG emissions levels back to 161 million metric tons, about the same levels as in 2000.
    - The three largest sources of GHG emissions in Virginia are electricity generation, transportation, and non-utility uses of fuel in industrial, commercial, and residential facilities. The Commission concluded that emissions from all of these sources must be addressed in order for our climate-change mitigation efforts to be successful and fair.
    - Further information can be found in the Department of Environmental Quality's report entitled "Inventory and Projections of Greenhouse Gas Emissions," available on the Commission's website.

2. Evaluate expected impacts of climate change on Virginia's natural resources, the health of its citizens, and the economy, including the industries of agriculture, forestry, tourism, and insurance.

    - Climate change will have a significant impact on Virginia's ecosystems. Suitable habitat for some species will decline, other species will become extirpated, and others species will become extinct. Climate change will exacerbate existing threats such as invasive species, pathogens, and pollution.
    - Virginia's forestlands sequester approximately 23 million metric tons of carbon dioxide (CO_2) per year. Unless current land conversion trends are reversed, however, this number will decline every year. The loss of agricultural lands, which also can sequester CO_2, depending on the management practices applied, is an additional concern.
    - Virginia's agriculture and forestry industries, as well as commercial and sport fishing industries and park land, will be impacted by climate change. More research to determine specific effects is needed.
    - Climate change is likely to have wide-ranging and mostly adverse impacts on human health. Extreme weather events can directly affect health and could lead to compromised water and food supplies, resulting in increases in waterborne and food-borne illnesses. Climate change also is expected to increase the incidence of diseases associated with air pollutants and aeroallergens and exacerbate other respiratory and cardiovascular conditions.

- Sea level rise is a major concern for coastal Virginia, particularly the highly populated Hampton Roads region. Sea levels in the Chesapeake Bay region are projected to be 0.7-1.6 meters (2.3-5.2 feet) higher by 2100.
- The continued affordability and availability of insurance for Virginia's landowners, especially in coastal areas, is a concern as our climate changes. Indeed, these effects already are being felt in coastal Virginia.
- The nation's movement toward a GHG emission-constrained economy represents an opportunity for Virginia researchers, inventors, and investors to accelerate and deploy technologies in the areas of energy efficiency, indigenous renewable and low-emission energy, and carbon capture and storage.

3. Identify what Virginia needs to do to prepare for the likely consequences of climate change.

The Commission recommended actions to:

- Focus and expand state capacity to ensure implementation of the Climate Change Action Plan. For example, the report suggests establishing a Sub-Cabinet on Climate Change Response to ensure implementation of the Commission's recommendations so that Virginia meets its GHG reduction goals, and that the state's response to climate change is refined and updated as more information becomes available.
- Educate the public about climate change and the actions necessary to address it. The report proposes development of an outreach and educational campaign to increase understanding of the causes and impacts of climate change and to build public support for implementation actions.
- Continually monitor, track, and report on GHG emissions and the impacts of climate change. For example, the report recommends establishing a GHG reporting system for stationary and transportation sources. All stationary sources of air pollution already required to report air emissions would include GHG emissions in its reports, and VDOT would report on transportation emissions. The Department of Environmental Quality would prepare an annual report of emissions in Virginia.
- Prepare for and adapt to the impacts of climate change that cannot be prevented. For example, the report calls on localities to include projected climate change impacts, especially sea level rise and storm surge, in all planning efforts. The Secretaries of Commerce & Trade and Transportation are encouraged develop plans to minimize the impacts of climate change on the economy and Virginia's transportation infrastructure.
- Undertake a thorough review of state agency and local government authority to account for climate change in their actions.

4. Identify the actions (beyond those identified in the Energy Plan) that need to be taken to achieve the 30% reduction goal.

- The final report outlines actions that have been calculated to reduce Virginia's projected emissions in 2025 from 230 million metric tons per year to 154 million metric tons per year – a greater level of savings than necessary to reach the 30% goal.
- In addition to recommending near- and medium-term actions to meet the reduction target of Executive Order 59, the Commission's recommendations include consideration of a

more aggressive GHG reduction goal that more closely reflects the Intergovernmental Panel on Climate Change (IPCC) recommendations. The IPCC recommendations call for reducing GHG emissions by 25% below the 1990 level by 2020, and 80% below the 1990 level by 2050.

The Commission recommended actions to reduce GHG emissions by:

- Increasing energy efficiency and conservation. For example, the report calls on the General Assembly to enact a mandatory energy efficiency standard that would require utilities to reduce consumption from 2006 levels by 19% of projected electricity needs by 2025 and recommends stronger energy standards for commercial and public buildings.
- Advocating for federal actions that will reduce net GHG emissions. For example, the report calls on Congress to establish a mandatory economy-wide cap and trade program to reduce greenhouse gas emissions that allows use of certified high quality offsets, and includes, through a combination of free and auctioned allowances, a financial incentive to reduce carbon emissions, with revenues to be used for actions to mitigate and adapt to climate change. The report also supports the accelerated establishment of Corporate Average Fuel Economy (CAFE) standards for heavy trucks and stronger CAFE standards for passenger vehicles.
- Expanding commuter choice, improving transportation system efficiency, and improving community designs. For example, the report recommends that state transportation plans include quantifiable measures and achievable goals relating to greenhouse gas reduction and that the state accelerate efforts to promote telework. With regard to funding for the Commonwealth's transportation network, the report recommends that state and local transit and rail funding should be increased and that funding should be targeted towards existing communities and designated urban development areas and promote compact, walkable, transit-oriented development areas.
- Increasing efficiency of the transportation fleet and use of alternative fuels. For example, the report calls on the General Assembly to enact state incentives for the purchase of fuel-efficient vehicles, regardless of energy source, and suggests that Virginia should become a leader in promoting low-carbon fuel options, such as low-carbon gasoline blends, biodiesel, natural gas, plug-in hybrids, hydrogen, and other alternative fuel technologies.
- Accelerating research and development. The report suggests the establishment of new entity or empowerment of an existing entity to increase clean energy and climate change related technology research through increased funding and collaboration among Virginia's research universities and private companies.
- Increasing the proportion of energy demands that are met by renewable sources. For example, the report recommends that Virginia's voluntary renewable portfolio standard (RPS) should be increased beyond 2022 so that utilities would be required to achieve a 15% RPS by 2025 to continue receiving the statutory incentives for meeting the RPS.
- Increasing the proportion of electricity generation provided by emissions-free sources of energy. The report encourages the development of additional nuclear energy capacity in Virginia, as well as emissions-free renewable electricity generation (such as solar and wind). The proposed expansion of nuclear generation should be accompanied by

recommendations to Congress addressing the importance of treating and storing spent fuel in a safe, secure, and environmentally sensitive manner.

- Protecting/enhancing natural carbon sequestration capacity and researching/promoting carbon capture and storage technology. For example, the report calls on the General Assembly to provide funding for research at Virginia universities on carbon capture and sequestration, including research to determine the commercial viability of carbon capture and sequestration technology and the potential for its development and deployment in Virginia. The report also contains recommendations designed to improve Virginia's ability to rely on natural carbon sequestration, including the adoption of ambitious goals to protect forests, wetlands, and farmland to maximize protection of natural carbon sinks.
- The Commission also recommended that the Commonwealth and local governments lead by example by implementing practices that will reduce GHG emissions. For example, state and local governments can minimize automobile travel by their employees and improve the energy efficiency of public buildings and vehicles they use.

5. Identify climate change approaches being pursued by other states, regions, and the federal government.
   - The Commission heard a great deal of testimony about approaches being pursued by other states, regions, the federal government and by local governments. This information is summarized in the Commission's interim report (included in the final report as Appendix B).
   - Many of the Commission's recommendations are consistent with those of Climate Action Plans prepared in our neighboring states.